IVECO aifo

G

GAS GENSET

G.E. 8210 G 85

NATURAL GAS

Generating set performance

	1500 rpm				1800 rpm				
	110%	100%	75%	50%	110%	100%	75%	50%	
Peak efficiency net rated output	125	119			-	127			kVA
Peak efficiency net active power output at 0,8 p.f.	100	95			-	102			kW
Lean burn net rated output (*)	-	100			-	90			kVA
Lean burn net active power output at 0,8 p.f.	-	80			-	72			kW
Voltage available (L - L)	190 to 440				190 to 480				V

(*) According to TA-Luft emissions rule

Prime mover performance

Peak efficiency power	117	106	80	53	-	117	87	58	kW
Lean burn power	-	90	68	45	-	84	63	43	kW
Mean piston speed	7,8				9,4				m/s

Derating

(see general genset installation manual)

Prime mover data

Type	Four stroke cycle	
Induction type	NA	
Cylinders, number and arrangement	6L	
Bore x Stroke	137 x 158	mm
Total displacement	13,8	l
Cooling system	closed circuit	
Exhaust manifold pattern	dry	
Speed governor	electronic	
Max speed drop steady conditions	isochronous	
Engine rotation mass moment of inertia (less flywheel)	1,088	kgm²
Moment of inertia of flywheel	2,84	kgm²
Engine rotation (viewed facing flywheel)	CCW	
Compression ratio	12:1	

Lubrication system

Total lube oil capacity (including filters)	27,5	l
Oil sump capacity: min	13,2	l
max	22	l
Lube oil specifications	echnical Data	
Maximum oil temperature	120	°C
Minimum oil pressure at rated speed	1,96	bar
Max Specific lube oil consumption	0,8% max of gas consumption	

	1500 rpm				1800 rpm			
	110%	100%	75%	50%	110%	100%	75%	50%

Intake and exhaust system

Maximum allowable intake restriction with clean air filter				250					mmH_2O
Maximum allowable intake restriction with dirty air filter				500					mmH_2O
Air filter type				dry, paper cartridge					
Maximum allowable back pressure in exhaust system				1500					mmH_2O
Charge pressure (peak efficiency)		-				-			bar
Charge pressure (lean burn)		-				-			bar

Carburation

Venturi based air/gas mixer and zero pressure governor. Interfaceable with automatic lambda control system

Ignition

Digital, single firing On request interfaceable with knocking control system

Electric system

Breakaway current	1670	A
Cranking motor rating	6,6	kW
Minimum recommended battery capacity	2 x 150	Ah
Auxiliary voltage	24	V
Alternator with voltage electronic control unit (negative earth)	28V, 30A	
Terminal connection board	Standard	

Cooling system

Coolant capacity (engine only)				~30					l
Coolant capacity (engine + radiator)				~60					l
Coolant pump flow rate		22				26			m^3/h
Max allowable pressure drop on external water circuit		0,1				0,12			bar
Max static pressure on exhaust side of radiator				10					mmH_2O
Fan power consumption			4			7			kW
Electric fan power consumption			-			-			kW
Fan air flow			5			7			m^3/s
Max engine outlet water temperature (alarm)				98					°C
Recommended coolant				50% water, 50% glycol					
Radiator core size B x H				710 x 900					mm
Water pressure drop in the jacket water coolant circuit at minimum coolant flow (#)				1,9					bar
Minimum allowable water coolant flow to intercooler (#)				-					m^3/h
Max pressure drop on external intercooler water circuit (#)				-					bar
Max inlet water temperature to intercooler (#)				-					°C
Max inlet water temperature to oil cooler (#)				-					°C

(#) to utilize only with alternative exchanger (no std radiator)

1500 rpm				1800 rpm			
110%	100%	75%	50%	110%	100%	75%	50%

Synchronous generator data

Poles	4	
Phases	3 + N	
Standard winding connections	STAR	
Windings treatment	for humide and saline climates	
Stator/rotor impregnation	class H	
Temperature rise	according to class H	
Frame mounting	B2	
Enclosure (according to IEC 34-5 Standards)	IP21	
Cooling	air	
Damper windings	for parallel (optional)	
Maximum overspeed	2250	min^{-1}
Waveform distorsion	no more than 5%	
Overexcitation device	for Icc>3In (optional)	
Exciter	brushless rotating exciter design with solid state	
Voltage regulator	static electronic design	
Steady voltage precision	within ± 1% Vn from no load to full at 0,8 ÷ 1 p.f.	%

Basic data

Installation dimensions (width x length x height)	1000 x 3100 x 1692	mm
Dry weight (with standard accessories)	~2850	kg
Wet weight (with standard accessories)	~2905	kg

Electric control board (only on request)

The manual starting control panel has been designed and built to combine all the instruments control and warnings lights both for the engine and the generator.
The sheet steel made panel is carefully painted for tropical climate and is designed for generator mounting and dust proof application.
The main equipments included on the control panel are the following: three ammeters with CT's; voltmeter; voltmeter selector switch; frequency meter; moulded case triple-pole circuit breaker with termal and magnetic releasesand minimum voltage coil; electronic device for shut-down of the engine in case of HWT, LOP and overspeed; starting key and stop push button; acoustic signal; warning light for: high cooling water temperature, low oil pressure, high oil temperature, battery charging, overspeed, low and high gas pressure, low water level; outlet power cable terminal box; hours meter; instruments for: water temperature, oil temperature, oil pressure.

	1500 rpm				1800 rpm				
	110%	100%	75%	50%	110%	100%	75%	50%	

Heat balance (Peak efficiency) (§)

Input energy (LHV)	362(100)	335(100)	271(100)	213(100)	-	404(100)	336(100)	268(100)	kW (%)
Work	117(32,2)	106(31,6)	80(29,3)	53(24,8)	-	117(29)	87(25,9)	58(21,7)	kW (%)
Heat to coolant (water + oil)	124(34,3)	118(35,3)	106(39,1)	92(43,3)	-	141(35)	129(38,4)	120(44,7)	kW (%)
Heat to exhaust (LHV)	111(30,7)	101(30,2)	79(29,1)	61(28,5)	-	136(33,7)	109(32,4)	82(30,7)	kW (%)
Heat to intercooler	0	0	0	0	-	0	0	0	kW (%)
Heat to radiation	10,1(2,8)	9,7(2,9)	6,9(2,6)	7,2(3,4)	-	9,8(2,4)	11(3,3)	7,8(2,9)	kW (%)
Heat to exhaust cooled to 140 °C	86	78	60	45	-	107	86	64	kW
Max exhaust temperature (after turbine)	530	525	500	470	-	560	555	530	°C
Exhaust gas flow	590	545	445	375	-	680	545	440	kg/h
Induction air flow	445	410	330	280	-	510	410	330	m^3_N/h
SFC - Specific fuel consumption	11,2	11,4	12,3	14,5	-	12,4	13,9	16,6	MJ/kWh
BMEP	6,8	6,1	4,6	3,1	-	5,7	4,2	2,8	bar

Heat balance (Lean burn) (§)

Input energy (LHV)	-	311(100)	257(100)	204(100)	-	350(100)	287(100)	242(100)	kW (%)
Work	-	90(29)	68(26,3)	45(22,3)	-	84(24,1)	63(22,1)	43(17,6)	kW (%)
Heat to coolant (water + oil)	-	103(33,1)	97(37,7)	87(43)	-	121(34,6)	114(39,6)	109(45)	kW (%)
Heat to exhaust (LHV)	-	110(35,3)	84(32,7)	64(31,3)	-	132(37,8)	101(35,3)	82(33,9)	kW (%)
Heat to intercooler	-	0	0	0	-	0	0	0	kW (%)
Heat to radiation	-	8,2(2,6)	8,4(3,3)	7(3,4)	-	12,2(3,5)	8,5(3)	8,6(3,5)	kW (%)
Heat to exhaust cooled to 140 °C	-	85	64	48	-	105	78	65	kW
Max exhaust temperature (after turbine)	-	510	490	475	-	565	525	520	°C
Exhaust gas flow	-	625	505	395	-	665	560	455	kg/h
Induction air flow	-	475	385	300	-	505	425	345	m^3_N/h
SFC - Specific fuel consumption	-	12,4	13,7	16,1	-	14,9	16,3	20,5	MJ/kWh
BMEP	-	5,2	3,9	2,6	-	4,1	3,1	2,1	bar

(§) Indicative average figures depending on installation, setting of speed regulator and carburator